



EXCERPT FROM THE PROCEEDINGS

OF THE FIFTH ANNUAL ACQUISITION RESEARCH SYMPOSIUM

**MARKET DOMINANCE, EFFICEINCY, INNOVATION, AND
GLOBALIZATION: A CASE STUDY OF THE TANKER COMPETITION
BETWEEN BOEING AND NORTHROP GRUMMAN/EADS**

Published: 23 April 2008

by

Dr. Nayantara Hensel

**5th Annual Acquisition Research Symposium
of the Naval Postgraduate School:**

**Acquisition Research:
Creating Synergy for Informed Change**

May 14-15, 2008

Approved for public release, distribution unlimited.

Prepared for: Naval Postgraduate School, Monterey, California 93943



ACQUISITION RESEARCH PROGRAM
GRADUATE SCHOOL OF BUSINESS & PUBLIC POLICY
NAVAL POSTGRADUATE SCHOOL

Report Documentation Page			Form Approved OMB No. 0704-0188		
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 23 APR 2008		2. REPORT TYPE		3. DATES COVERED 00-00-2008 to 00-00-2008	
4. TITLE AND SUBTITLE Market Dominance, Efficiency, Innovation, and Globalization: A Case Study of the Tanker Competition Between Boeing and Northrop Grumman/Eads			5a. CONTRACT NUMBER		
			5b. GRANT NUMBER		
			5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S)			5d. PROJECT NUMBER		
			5e. TASK NUMBER		
			5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School, Graduate School of Business and Public Policy, Monterey, CA, 93943			8. PERFORMING ORGANIZATION REPORT NUMBER		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)			10. SPONSOR/MONITOR'S ACRONYM(S)		
			11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES 5th Annual Acquisition Research Symposium: Creating Synergy for Informed Change, May 14-15, 2008 in Monterey, CA					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 39	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

The research presented at the symposium was supported by the Acquisition Chair of the Graduate School of Business & Public Policy at the Naval Postgraduate School.

To request Defense Acquisition Research or to become a research sponsor, please contact:

NPS Acquisition Research Program
Attn: James B. Greene, RADM, USN, (Ret)
Acquisition Chair
Graduate School of Business and Public Policy
Naval Postgraduate School
555 Dyer Road, Room 332
Monterey, CA 93943-5103
Tel: (831) 656-2092
Fax: (831) 656-2253
E-mail: jbgreene@nps.edu

Copies of the Acquisition Sponsored Research Reports may be printed from our website www.acquisitionresearch.org

Conference Website:
www.researchsymposium.org



ACQUISITION RESEARCH PROGRAM
GRADUATE SCHOOL OF BUSINESS & PUBLIC POLICY
NAVAL POSTGRADUATE SCHOOL

Proceedings of the Annual Acquisition Research Program

The following article is taken as an excerpt from the proceedings of the annual Acquisition Research Program. This annual event showcases the research projects funded through the Acquisition Research Program at the Graduate School of Business and Public Policy at the Naval Postgraduate School. Featuring keynote speakers, plenary panels, multiple panel sessions, a student research poster show and social events, the Annual Acquisition Research Symposium offers a candid environment where high-ranking Department of Defense (DoD) officials, industry officials, accomplished faculty and military students are encouraged to collaborate on finding applicable solutions to the challenges facing acquisition policies and processes within the DoD today. By jointly and publicly questioning the norms of industry and academia, the resulting research benefits from myriad perspectives and collaborations which can identify better solutions and practices in acquisition, contract, financial, logistics and program management.

For further information regarding the Acquisition Research Program, electronic copies of additional research, or to learn more about becoming a sponsor, please visit our program website at:

www.acquistionresearch.org

For further information on or to register for the next Acquisition Research Symposium during the third week of May, please visit our conference website at:

www.researchsymposium.org



THIS PAGE INTENTIONALLY LEFT BLANK



Market Dominance, Efficiency, Innovation, and Globalization: A Case Study of the Tanker Competition between Boeing and Northrop Grumman/EADS

Presenter: Dr. Nayantara Hensel is an Assistant Professor of Economics and Finance at the Graduate School of Business and Public Policy at the US Naval Postgraduate School. She received her BA (magna cum laude) from Harvard University where she was a member of Phi Beta Kappa. She received her MA and PhD from the Graduate School of Arts and Sciences at Harvard University. in Business Economics (Applied Economics). Prior to joining the faculty at the US Naval Postgraduate School, Dr. Hensel served as a Senior Manager at Ernst & Young, LLP and the chief economist for one of its units, was a Post-Doctoral Research Fellow at the National Bureau of Economic Research, taught at Harvard University and the Stern School of Business at NYU, and was an economist at NERA (part of Marsh & McLennan). Dr. Hensel's recent research has examined the impact of size and market structure on efficiency (economies of scale) in European and Japanese banks and on their tendency to open branches or merge, the impact of contracting arrangements and mergers on the utilization of railroad networks, the role of venture capital in DoD, the determinants of discount rates for military personnel, and the impact of online auctions on IPO pricing efficiency. She has published in a variety of journals, including: the *Review of Financial Economics*, the *International Journal of Managerial Finance*, the *European Financial Management Journal*, the *Journal of Financial Transformation*, *Business Economics*, and *Harvard Business School Working Knowledge*.

Abstract

The purpose of this analysis is to provide a case study of the competition between Boeing and Northrop Grumman/EADS for the Air Force refueling tankers contract and to discuss the role of many of these considerations in the controversy. This is an important case study because it highlights: (a) the concerns of the American people that they are continuing to lose manufacturing jobs overseas and the solutions that they are considering to lessen that problem; (b) the conflict between the concept of the US and European defense companies as partners against common threats to provide the best systems possible and the concept of them as competitors; (c) the concerns of an incumbent that it is losing its traditional edge; and (d) the desire to have an open and fair government procurement process in which all parties are able to accept the outcome that the process produces. This case study explores the background behind the contract, the reactions to the awarding of the contract, the reasons for the awarding of the contract, and the likely implications of the Boeing/Northrop Grumman-EADS competition for the competing firms, the government contracting process, and the global market.

1. Introduction

Over the past twenty years, following the end of the Cold War, the defense industrial base in the US has witnessed many changes. First, reductions in defense budgets during the 1990's contributed to consolidation among US defense contractors. Many defense industry sub-sectors manifested a 2/3 reduction in the number of prime contractors and came to be dominated by larger defense giants formed from the consolidations: Lockheed Martin, Boeing, Northrop Grumman, Raytheon, and General Dynamics. Second, the overall US economy witnessed an acceleration of the already apparent shift toward the services sector and away from the overall US industrial base in key manufacturing industries, such as steel and automobiles. As US manufacturing wages became globally uncompetitive, the corporate giants of an earlier era, burdened with generous pension plans and wage/benefit contracts with unions,



went bankrupt. Third, the post 9/11 period has witnessed a broad range of security threats, including the emergence of a new type of threat in the form of terrorist groups. Many of these threats transcend the boundaries of nation-states and pose significant risks to all the members of the global community. Fourth, the new millennium has encouraged greater transparency and fairness in processes, ranging from corporate practices in the post-Enron world, to more up-to-date and open government procurement practices. These trends have resulted in the coalescence of the military forces of nation-states around the globe against these various security threats, including the threat of terrorism. Innovation continues to be important for the large US defense contractors as they compete with smaller entrants in a more open government procurement process, as they struggle against the concern that the US industrial base is shrinking overall and being replaced by overseas manufacturing, and as they handle the dual role of foreign companies as allies and as competitors.

The purpose of this analysis is to provide a case study of the competition between Boeing and Northrop Grumman/EADS for the Air Force refueling tankers contract and to discuss the role of many of these considerations in the controversy. This is an important case study because it highlights: (a) the concerns of the American people that they are continuing to lose manufacturing jobs overseas and the solutions that they are considering to lessen that problem; (b) the conflict between the concept of the US and European defense companies as partners against common threats to provide the best systems possible and the concept of them as competitors; (c) the concerns of an incumbent that it is losing its traditional edge; and (d) the desire to have an open and fair government procurement process in which all parties are able to accept the outcome that the process produces. This case study will explore the background behind the contract, the reactions to the awarding of the contract, the reasons for the awarding of the contract, and the likely implications of the Boeing/Northrop Grumman-EADS competition for the competing firms, the government contracting process, and the global market.

2. Prelude to the Announcement

During the past several years, recapitalization of the US Air Force has become an increasingly high priority. An important example of this imperative is the USAF's need to upgrade its aerial refueling tankers. The average age of the existing KC-135 tankers is 47 years (Wolf & Shalai-Esa, 2008) and the planes were first put into service in 1957 ("Analysts," 2008). The Air Force has 531 tankers from the Eisenhower period and 59 tankers built by McDonnell Douglas in the 1980's ("Northrop group," 2008), prior to its merger with Boeing (1997). Seeking to replace its ageing tanker fleet, the Air Force conducted a competition to award the initial \$35 billion contract. Some have referred to the contract as "one of the largest military contracts in history" (Hinton, 2008b, March 11). This award was to constitute the first of three awards that could ultimately be worth \$100 million ("Northrop group," 2008; "Boeing to protest," 2008), as the Air Force gradually replaces its existing 600-tanker fleet. The contract may involve the most expensive purchase in defense history, with the exception of the F-35 Joint Strike Fighter made by Lockheed Martin (Wolf & Shalai-Esa, 2008).

While there was some uncertainty over who the winner of the contract would be, many analysts thought that it would be Boeing because it had been providing refueling tankers to the USAF for almost 50 years and had, what was often referred to as a "monopoly." ("Northrop group," 2008). In an *Associated Press* article on February 22, 2008, it was reported, "The incumbent is considered the favorite to win—an assumption already reflected in its stock price" (Tessler, 2008, February 22). Indeed, the office of Texas Senator Kay Bailey Hutchison actually issued a statement on the morning of the announcement, February 29, 2008, (which it later



retracted) that Boeing was the winner (Drawbaugh, 2008, February 29), while a poll of 10 industry analysts indicated that all of them were predicting a win by Boeing (Wolf & Shalai-Esa, 2008). Nevertheless, the Air Force did not release any hint of its decision prior to its announcement. Indeed, as of February 28, the day before the announcement, General Michael Moseley (Chief of Staff, USAF) noted that “he himself did not know whether Boeing or Northrop Grumman would be awarded a potential \$40 billion deal.” He stated, “As you know by policy and law, I’m not in the acquisition business and have no idea which airplane I’m going to get” (Wolf, 2008, February 28).

There was, however, some indication prior to the announcement, that the Air Force was concerned about a protest from the losing competitor. This could have been because the contract was so lucrative and important, and it felt that the loser would be disappointed. In addition, some officials may have anticipated that if Boeing, the incumbent tanker manufacturer, lost the contract, it would be more likely than Northrop Grumman or EADS to launch a protest. As early as February 22, it was reported that “the Air Force has said it expects a protest and has been extra careful in documenting its decision-making process.” Lieutenant General Raymond Johns, the Air Force Deputy Chief of Staff for Strategic Plans and Programs, noted, “We will not let politics dictate the best tanker for the Air Force” (Hinton, 2008, February 22). Gen. Mosely continued, in his February 28 statement, that he hoped that whomever lost the contest would not challenge the result by lodging a protest with the GAO, which then has 100 days to make a recommendation as to whether the contract competition should be re-opened. His observation reflected concern about delaying the time line for the delivery of the tankers to the USAF (Wolf, 2008, February 28).

3. The Announcement

On February 29, 2008, after the markets closed, the Air Force announced that the Northrop Grumman/EADS bid for the aerial refueling tanker had won the contract (Wolf, 2008, February 29). As mentioned earlier, this comprised the first of three awards that could ultimately be worth \$100 billion (“Northrop group,” 2008; “Boeing to protest,” 2008), although the winner of this competition would not necessarily be the winner of the subsequent competitions (Wolf & Shalai-Esa, 2008). The contract awarded was actually worth \$1.5 billion, covering 4 test aircraft. The intent was then to buy 175 more planes, for a total value of \$35 billion. The Air Force hoped to operate the new tankers in 2013 (Wolf & Shalai-Esa, 2008). While the \$35 billion amount would stretch over 10-15 years, an additional \$60 billion in revenue could come from maintenance and parts (Hinton, 2008b, March 11).

The tanker in the winning bid, the KC-45, was a modification of the Airbus A330 (Hepher, 2008, March 3). Air Force General Arthur Lichte noted that the KC-45A, provided “More passengers, more cargo, more fuel to offload” and that the bigger capacity of that tanker had been an important consideration in awarding the contract (“Northrop group,” 2008). The Northrop tanker carried more fuel—250,000 pounds—than the Boeing tanker at 202,000 pounds (“Tanker Deal,” 2008). Finally, Loren Thompson at Lexington Institute, was quoted as observing that, “With Northrop, the military could have ‘49 superior tankers operating by 2013’ [...] while Boeing’s proposal would give it ‘only 19 considerably less capable planes’” (“Tanker Deal,” 2008).



4. Reaction to the Announcement and the Differences in the Two Bids

Almost immediately following the announcement that its bid had not been selected, Boeing indicated that it was upset at the decision. On Friday, February 29, following the award of the contract, Boeing released an announcement stating, “We believe that we offered the Air Force the best value and the lowest risk tanker for its mission. Our next step is to request and receive a debrief from the Air Force” (“Analysts,” 2008). Boeing noted that it would not decide on whether to formally appeal the contract decision until after the Air Force had briefed them on why the contract had been awarded to the Northrop/EADS team (“Northrop group,” 2008). On Tuesday, March 4, the Air Force agreed to provide a briefing sooner to Boeing after Boeing had alleged that delaying a briefing until March 12 would be “inconsistent with procurement practices.”

In its public press release requesting an immediate briefing on the tanker, Boeing argued:

“based on values disclosed in the Air Force press conference and press release, the Boeing bid, comprising development and all production airplane costs, would appear less than the competitor. In addition, because of the lower fuel burn of the 767, we can only assume our offering was more cost effective from a life cycle standpoint. [...] Initial reports have also indicated that we were judged the higher risk offering [...] Northrop and EADS are two companies that will be working together for the first time on a tanker, on an airplane they’ve never built before, under multiple management structures, across cultural, language, and geographic divides [...] Initial reports also indicate there may well have been factors beyond those stated in the RFP, or weighted differently than we understood they would be, used to make the decision” (“Boeing Requests,” 2008).

On March 5, Jim Albaugh, CEO of Boeing’s Integrated Defense Systems, argued that Boeing had provided the Air Force exactly what was requested in its RFP and for a lower amount than the \$35 billion price indicated (Carpenter, 2008). In response to General Lichte’s comment that the greater size of the Northrop-EADS tanker was important in the decision-making process, Albaugh argued that, “In our reading of the RFP, it wasn’t about a big airplane. If they’d wanted a big airplane, obviously we could have offered the 777. And we were discouraged from offering the 777” (Carpenter, 2008).

On Friday, March 7, Boeing met with the Air Force to receive its briefing on why it lost the contract (Palmer, 2008). After the meeting, Boeing stated that it was “seriously considering” launching a protest (“Boeing: Far,” 2008). While the Air Force had said that the Northrop Grumman/EADS bid did better than the Boeing bid on four of the five criteria, Boeing claimed that it scored marks which were identical to those of Northrop/EADS on the five main criteria (Rigby, 2008, March 11). John Young from the Pentagon reiterated that there were “substantial capability and cost differences” between the two proposals (Rigby, 2008, March 11). Following the briefing, Boeing had 10 days to file a protest with the GAO. Then, the GAO would have 100 days to determine if the contract had been awarded fairly or if a new competition would be needed (Wolf, 2008, March 7).

On Monday, March 10, Boeing announced that it would challenge the decision (“Boeing to challenge,” 2008). Boeing argued that the Air Force had changed its requirements on the amount of ramp space and how closely the tankers could be parked to each other and that “the changes were designed to keep them [Northrop] in the competition” (Hinton, 2008a, March 11).



Boeing felt that the process was “replete with irregularities,” which “placed Boeing at a competitive disadvantage” and that “the original mission for these tankers—that is a medium-sized tanker where cargo and passenger transport was a secondary consideration—became lost in the process, and the Air Force ended up with an oversized tanker.” Mark McGraw, manager of Boeing’s tanker programs, stated, “As the requirements were changed to accommodate the bigger, less capable Airbus plane, evaluators arbitrarily discounted the significant strengths of the KC-767, compromising operational capabilities, including the ability to refuel a more versatile array of aircraft such as the V-22 and even the survivability of the tanker during the most dangerous missions it would encounter” (“Boeing Protests,” 2008). McGraw did not think that Boeing had made a mistake in this competition and stated, “Last year we won nine out of 11 major competitions we went after. I think we know how to win competitions” (Wingfield, 2008).

On March 11, Secretary of the Air Force Michael Wynn stated that the Air Force did not steer Boeing from proposing a larger plane and that “these are competent suppliers. They can read a proposal” (Rigby, 2008, March 11). Late on Tuesday, March 11, the Air Force stated that this decision gave “the best value to the American taxpayer and to the warfighter” and that it had continually provided the bidders with feedback on their proposals to “provide transparency, maintain integrity, and promote fair competition,” while suggesting that the larger size of the Northrop/ EADS tanker was very much a deciding factor (Tessler, 2008, March 11). Nevertheless, the 767 model had some advantages over the Airbus 330-200 model. The Boeing tanker could land on narrower, shorter airstrips, such as those in developing countries in Africa, or in Afghanistan (Hinton, 2008, February 22).

One of the concerns cited by critics of the Northrop/EADS proposed tanker design is that they are larger and will require more fuel (Shalal-Esa, 2008), which will be problematic with increases in fuel prices. On March 17, Boeing released a report stating that, over the next 40 years, it would cost the Air Force an extra \$30 billion in fuel costs to operate the 179 Airbus A330-200 refueling tankers relative to a similar number of Boeing tankers. The A330-200 requires 24% more fuel than the 767-200ER. At \$100 per barrel for oil, the Airbus fleet would cost the Air Force \$25 billion more in fuel costs over 40 years, while at \$125 per barrel, it would be \$29.8 billion more. At Boeing’s briefing, the Air Force did note “that they placed little value on fuel and maintenance lifecycle costs” (“Boeing Study,” 2008).

Will Boeing’s protest succeed? As of this writing (late March, 2008), the evidence suggests that it may not, but that the protest itself may delay the Air Force’s timeline for obtaining the new tankers. Analysts, such as George Shapiro at Citigroup, have argued that Northrop/EADS will end up keeping the contract, but that the dispute will take 6-9 months to resolve (Hinton, 2008a, March 11). Myles Walton, an analyst at Oppenheimer & Co., stated, “given the initial judgment by the Air Force combined with the Northrop team’s better score on four out of five criteria, we anticipate Boeing’s protest will be denied” (Rigby, 2008, March 11). On March 18, Mark McGraw, the tanker manager for Boeing, stated “We know its an uphill battle” and that “I think the best we can hope for is another shot”—perhaps a portion of the competition being re-run” (Wolf, 2008, March 18). Northrop’s tanker manager, Paul Meyer rated the chance of the GAO upholding Boeing’s protest as “low” (2008, March 18).

Complaints are often unsuccessful with the GAO. Only 249 of the 1327 bid complaints lodged with the GAO in 2006 received an official decision; in 71% of those, the GAO denied the complaint and supported the government’s earlier decision (“Boeing to protest,” 2008). In fiscal year 2007, of the 1393 cases filed and closed, 16% of them were ruled to have merit by the GAO (Crown & Epstein, 2008). Boeing has, however, been involved as the losing party in some



of the GAO decisions recently. In 2007, Lockheed Martin and Sikorsky Aircraft (part of United Technologies) successfully protested the awarding of a contract to Boeing for a \$15 billion helicopter. In February, 2008, the GAO recommended that the award of a \$1.2 billion contract for airplane maintenance to Boeing should be re-examined by the Air Force, which, in turn, has agreed to reevaluate it (Rigby, 2008, March 3).

Boeing is, in many ways, behaving like a traditional, incumbent corporate giant who is upset that its traditional turf is being encroached upon. Many of its arguments, discussed previously, have focused on the fact that they did not understand the Air Force's preferences, and that, consequently, they did not provide a more innovative model of tanker. Last year, Boeing only sold 36 Boeing 767's—a variation of which was proposed by Boeing for the tanker competition last year—and, having sold 1000 over the past 30 years, only has 51 left to deliver. This suggests that, in the absence of additional orders, the 767 assembly lines near Seattle may close down. The 787 Dreamliner, on the other hand, which is a successor to the 767, received 369 orders last year (Rigby, 2008, March 3). Boeing argued that, "To some extent, the requirements [of the Air Force] steered us to the 767" (Vorman & Wolf, 2008). EADS, on the other hand, read the same RFP as Boeing, yet proposed a more innovative model of tanker, particularly in designing a new boom. Indeed, on March 4, EADS confirmed that it had completed the first test of the Air Refueling Boom System for the aircraft ("EADS confirms," 2008).

Boeing has had a previously difficult history with Air Force tankers. In 2004, Congress voted to overturn of the USAF plan to lease and buy 100 modified KC-767 tankers from Boeing for \$23.5 billion following a Pentagon procurement scandal, in which one of the key Air Force procurement officials, Darleen Druyen, and the CFO of Boeing, Michael Sears, went to jail. The scandal was brought to light partially with the assistance of Senator McCain's office (Wolf & Shalal-Esa, 2008). It is unclear whether this in any way impacted the decision, other than that the prior history of scandal encouraged the Air Force to make this procurement decision very transparent and well-documented and that the scandal delayed the Air Force's strategy of replacing its aging tanker fleet.

Boeing has had a history of tardiness and delays, which reduces its argument that it is a reliable supplier. For example, it delivered its first tanker to Japan in late February, 2008, when the original target date had been in 2005. It is two years behind schedule with Italy, and hopes to deliver the first of four tankers to it this year (Rigby, 2008, March 3). Furthermore, Boeing has experienced delays on the 787 Dreamliner, which has led to a decline in its stock price since the summer of 2007 (2008, March 3). Indeed, before the contract results were announced, on February 21, Japan Air Lines, one of Boeing's best customers, announced that it was considering buying some Airbus A350 XWR planes due to the production delays for the Boeing 787's. Indeed, due to the lateness of the planes, some airlines, such as Air India and Qantas, have stated that they are likely to seek financial compensation from Boeing (Tessler, 2008, February 22). News on delays continued to be announced after the awarding of the contract—on March 12, it was reported that Boeing may not complete more than 45 of its 787's by next year, which is a change from its previous plan, which had involved the delivery of 109 planes next year (Hinton, 2008, March 12).

5. Should the Contract be Awarded to a Foreign Contractor?

One of the central concerns surrounding the awarding of the contract was that Boeing, an American firm, had lost its bid to a contracting team which involved a foreign contractor. This concern embodied several issues: (a) the possibility that US defense jobs were being lost to the



European defense sector; (b) concerns that systems key to national security would be made by a foreign contractor; and (c) an overall fear that the US manufacturing industry is shrinking and the economy is shifting toward services. Indeed, in the official press releases, Northrop Grumman was referred to as the winner of the contract, while the role of EADS was downplayed (Morgan, 2008).

The Congressional representatives from the regions in Washington, Kansas, and Connecticut that would have benefited if Boeing had received the contract have strongly protested the decision. The Congressmen from the Seattle area claimed to be “outraged,” while Kansas Representative Todd Tiahrt stated that he would seek a review of the contract decision (Drawbaugh, 2008, February 29). On Monday, March 3, a group of lawmakers from Kansas and Washington wrote to Defense Secretary Robert Gates and asked that the Air Force explain to Boeing why it lost the contract rather than wait until mid-March to do so (Drawbaugh, 2008, March 3). On March 5, members of the congressional delegation from Connecticut formally requested a briefing on why Boeing had lost the contract. Their concern was linked to the fact that the engines for the Boeing tanker would have been made by Pratt & Whitney, based in East Hartford, Connecticut and the electrical systems would have been made by Hamilton Sundstrand in Windsor Locks, Connecticut (“Conn,” 2008). On March 7, the Kansas Senate adopted a resolution with a unanimous vote asking the President and Congress to block the contract (“Kan. Senate,” 2008). On March 11, Representative Todd Tiahrt of Kansas announced that he was developing a bill to block funding for the Northrop tanker (Drawbaugh, 2008, March 11).

On the other hand, the Northrop Grumman/EADS tanker would create jobs in the US, especially in Alabama, and the Alabama Congressional delegation was very supportive of the results. Senator Richard Shelby (Alabama) noted that the contract would bring 7,000 jobs to Alabama (Drawbaugh, 2008, February 29) and that “Any assertion that this award outsources jobs to France is simply false” (Drawbaugh, 2008, March 3). Senator Jeff Sessions (Alabama) noted, “In reality, what we’re talking about is the insourcing, into America, of an aircraft production center that would bring 2500 jobs to our area and 5,000 to our state” (2008, March 3). Kansas Representative Tiahrt, on the other hand, stated, “I cannot believe we would create French jobs in place of Kansas jobs,” while a joint statement of lawmakers protesting the decision noted, “We are outraged that this decision taps European Airbus and its foreign workers to provide a tanker to our American military” (2008, March 3).

Actually, both the Boeing tanker and the Northrop/EADS tanker would create jobs domestically and overseas. About 85% of Boeing’s tanker would have been made in the US. Boeing argued that 44,000 new and existing jobs would have been assisted by the contract, across 40 states and 300 suppliers. Wichita, Kansas and Everett, Washington would have been major locations for tanker production, and the engines in the tanker, made by Pratt & Whitney, would have been made in Connecticut. Nevertheless, some portions of its tanker would have been made overseas—the tail in Italy and the fuselage in Japan (Tessler, 2008, March 6).

About 60% of the Northrop/EADS tanker would be made in the United States. This tanker was originally projected to create 25,000 jobs nationwide, including several thousand jobs in Mobile, Alabama, where the final assembly work was to take place (Vorman & Wolf, 2008). On March 10, however, Northrop’s estimate of jobs created doubled to 48,000 jobs because it used more recent data and a formula from the Dept. of Labor in forecasting jobs in the aerospace industry (Crawley, McSherry, Rigby & Vorman, 2008). This estimate topped Boeing’s 44,000 jobs. General Electric would build the engines for the Northrop/EADS tankers in North Carolina and Ohio (“Northrop group,” 2008) and expected to make \$5 billion from the



contract (Witkowski, 2008). The contract would, however, also assist the European defense industry. The wings would be manufactured in the UK, such that 9,000 jobs would be created. GE Aerospace's British arm would also be involved (Lagorce, 2008, March 3). The Airbus-330, of which the KC-45 is a modification would have parts made in Germany, France, Spain, and Great Britain, but assembly of the KC-45 would occur in Mobile, AL (Wolf & Shalal-Esa, 2008). While Northrop argued that the contract would result in 2,000 jobs shifting to the US from Europe, EADS argued that the assembly plants in Mobile would result in the creation of new jobs in the US, not in jobs moving from Europe to the US ("Northrop Grumman," 2008).

Labor unions in the US were concerned that the Air Force did not consider US jobs when it awarded the contract, and that EADS received subsidies from European governments for years, creating a playing field which is not level. On March 3, the Association of Machinists and Aerospace Workers requested Congress enact legislation to prevent the US from awarding contracts to overseas companies receiving government subsidies, since, in a complaint filed by the US Trade Representative, the EU had been accused of providing subsidies to Airbus which are anticompetitive (Vandore, 2008, March 3). Airbus CEO Tom Enders, in response to criticism that Airbus was destroying more American jobs due to its subsidies than it could create by building tankers in the US, noted that it sourced \$11 billion from the US for Airbus and has been the largest single customer outside the US for the aerospace industry (Hepher, 2008, March 7).

The AFL-CIO and the United Steelworkers Union also echoed concerns about sourcing the contract to a foreign manufacturer (Shalal-Esa, 2008). In a statement reported on March 3, the General Vice President of the International Association of Machinists and Aerospace Workers, Rich Michalski, said, "President Bush and his administration have today denied real economic stimulus to the American people and chosen instead to create jobs in Toulouse, France" ("Boeing calls," 2008). Senator Hillary Clinton from New York stated that "she found it 'troubling the government would decide to award the contract to a team including a European firm it is simultaneously suing at the World Trade Organization for receiving illegal subsidies'" (Lagorce, 2008, March 3). Senator Barack Obama from Illinois was also concerned that Boeing, based in Chicago, had lost the contract (Daly, 2008). Similarly, French unions protested the loss of assembly jobs to the US, since the tankers would be assembled in Mobile, AL ("EADS confirms," 2008).

Debates concerning job creation and destruction, similar to those in the tanker controversy, have occurred in a variety of different US manufacturing industries over the past twenty years and have focused on the broader issue of whether the US should get the best product at the lowest cost or artificially try to prop up uncompetitive industries. Senator McCain noted, "I've never believed that defense programs should be—that the major reason for them should be to create jobs. I've always felt that the best thing to do is to create the best weapon system we can at cost to taxpayers" (Drawbaugh, 2008, March 3). These thoughts were echoed in the comments of Pentagon acquisition chief John Young, who noted, "I don't think anybody wants to run the department as a jobs program," further arguing that lawmakers usually focused on asking him to reduce the costs of weapons systems, and that a decision by Congress to ban sourcing of contracts to foreign companies could lead to reciprocal retaliation on the part of the Europeans (Shalal-Esa, 2008). Defense Secretary Robert Gates stated that "defense manufacturing was a global business" and that "we sell aircraft and ships and weapons systems all over the world. The four countries that I just visited in Asia and in the Middle East—Australia, Indonesia, India, and Turkey—all have an interest in acquiring American aircraft, as an example" ("Northrop Grumman," 2008).



The preceding comments reflect an awareness of the defense industry as a global industry in which the US, Europe, and other countries need to unite to combat global threats at various levels, including the terrorist threat. The growing interconnectedness between various countries is evident across a variety of other industries in our global economy. Furthermore, Boeing itself is an example of a global firm in that it makes weapons systems for other countries, so its hard for it to argue that it is unfair for a government to outsource a contract to a foreign supplier. Boeing sells C-17 planes to the UK, Australia, and Canada; F-15 jets to Japan, Korea, and Singapore; and aerial refueling tankers to Italy and Japan. Of the \$66.4 billion comprising Boeing's 2007 revenue, about \$27.1 billion came from overseas sales (commercial and military). Sales to Europe comprised \$6.3 billion, of which 16% of that came from sales to the military (Tessler, 2008, March 6). Overall, about 13% of Boeing's total revenues from defense production came from overseas and included contracts to produce rockets in France, "early-warning" systems in South Korea and Turkey, and helicopters in Saudi Arabia, Israel, and Egypt. About 5% of Northrop Grumman's revenues in the defense arena came from contracts with other countries (Wingfield, 2008).

6. Implications of the Contract Award

6.1 Toward Greater Global Cooperation?

The award of the tanker contract to a team which includes a foreign contractor is indicative of the recognition of the importance of forming a global effort with the most innovative products against a variety of immediate and long-term actual and potential threats. Hopefully, the protests against the awarding of the contract will not disrupt the overall message of global cooperation. French President Nicholas Sarkozy stated on March 3, "If Germany and France had not shown from the beginning that we were friends and allies of the United States, would it have been possible to have such a commercial victory?" (Hepher, 2008, March 3). Significantly, EADS failed in a similar competition in 2003, at the time when the then-President of France, Jacques Chirac, was opposing the involvement in Iraq. Sarkozy, on the other hand, has established closer ties with the US, as evidenced by France's support of the US position on Iran's nuclear activities (Hepher, 2008, March 5). Consequently, while the victory of the Northrop/EADS team was based on the perception that their product was better, it may have been assisted by greater US-French cooperation, and the award of the tanker contract will reinforce and enhance that cooperation.

Although the popular press has noted that concerns about national security could be key in involving a foreign contractor in manufacturing US weapons systems, there have been other instances in which foreign contractors have worked on key US defense projects. For example, EADS has been working on a \$2 billion Army contract for two years to replace 345 "Huey" helicopters, in addition to providing the Coast Guard with radar systems and search and rescue aircraft (Wingfield, 2008). The presidential helicopter was partially built by Italy's Finmeccanica, while Britain's BAE systems has been involved in a number of US DoD projects, since it purchased United Defense Industries in 2005 (Lagorce, 2008, March 3). Significantly, Boeing did not discuss national security issues in its formal protest (Wingfield, 2008), possibly for this reason. Moreover, all classified military technology on the KC-45a would be installed by Northrop after the aircraft was assembled, so that EADS would not be handling it (Hinton, 2008, March 10).

Furthermore, to alleviate national security concerns about having EADS as a partner on the contract, Germany and France are legislating changes to EADS' corporate charter



preventing foreign investors, such as Russian or Middle Eastern shareholders, from obtaining large stakes in the company. The plan will give the Germans and the French a golden share, so that they can block stakes over 15%, or they can provide EADS with a poison pill (Lagorce, 2008, March 7).

Although Boeing has painted the conflict as a competition between a US company and a European one, much of its concern is that of a traditional incumbent watching its competitor and arch-rival, Airbus, encroach on one of its key contracts. This is not the first time that Boeing and EADS have competed over a tanker contract, and that EADS has won. Since 2001, Boeing and EADS have faced each other in competitions for tankers in six countries, of which EADS has won four of the competitions to supply a total of 25 planes (Saudi Arabia, UAE, Australia, and Britain), while Boeing has won in Italy and Japan to supply 8 planes ("Boeing's trouble," 2008).

The reasons why EADS has triumphed in some of the other competitions is that, in recognition of a global marketplace, the contract was awarded to the bidder which seemed the most sensitive to the needs of the client, the most flexible, and the most willing to make investments in the relationship. EADS, as a newcomer in the tanker business, has manifested the traditional behavior of a successful entrant in terms of being innovative and absorbing risk, while Boeing has played the role of the traditional incumbent. For example, Boeing and BAE Systems in the UK competed against EADS for a \$26 billion contract to replace the UK's fleet of military refueling tankers in 2004, and lost the contract to EADS, which had not built a tanker before, and which had proposed a modification of the commercial Airbus A330. The UK felt that EADS was more willing to make concessions and assume the financial risk in constructing the planes and then leasing them to the government, whereas Boeing did not offer such terms. Although Boeing's C-17 transport plane had been successful there, the tanker business had been handled by a different division of Boeing than the C-17. The competition in Australia provides another illustrative example in that the Australian government was impressed by EADS' willingness to use its own R&D money to develop and test a boom, whereas Boeing used an older boom in its proposal, and suggested that it would build a newer type of boom only if it won the large US contract ("Boeing's trouble," 2008).

6.2 Impact on Boeing

Analysts have suggested Boeing's loss of the contract to the Northrop Grumman/EADS team "is part of a gradual erosion in Boeing's defense operations" and that this loss, combined with the reputational loss from the earlier tanker procurement debacle in 2004, is not helpful to its image (Rigby, 2008, March 3). Some analysts, such as John Kutler, have noted that, "I thought, for a number of reasons, it would be difficult for the Air Force to pick Boeing," arguing that when Rumsfeld in 2006 jettisoned the plans to lease Boeing 767's, change might be in the wind ("Analysts," 2008). Furthermore, Boeing's delays on the 787's have not provided it with the aura of a reliable supplier. On the other hand, EADS may face delays, and only time will tell if that will occur, since its contracts with UAE and Saudi Arabia were signed last year; the Australian tankers aren't due until 2009, and the British tankers aren't due until 2011 ("Boeing's Trouble," 2008).

Recently, several of Boeing's contracts have run into problems. The "virtual fence" project along the border between US and Mexico has been pushed back three years to 2011 due to technical problems, and the company has spent twice the amount of the \$20 million contract to fix these problems. The GAO, in February, found that three contracts with Boeing cost the government \$3 billion more, with cost overruns of as much as 30% coming from higher expenses in labor and materials (Caterinicchia & Tessler, 2008).



Will Boeing's loss of its traditional role in building USAF tankers put it at a disadvantage in other competitions for tankers domestically and abroad? This is possible, given that EADS' tankers, as discussed previously, have been chosen over Boeing's tanker in several other competitions. If this trend continues, and if Japan and Italy may end up with "orphan fleets"—i.e., they are the only countries with Boeing tankers—then these fleets may cost more to maintain than if Boeing had developed the scale economies in costs to maintain the parts through obtaining other contracts, especially the US contract. As a result, other potential customers may be less likely to choose Boeing in the competition when they see these higher maintenance costs, and the cycle will become self-reinforcing ("Boeing's Trouble," 2008).

The loss of the tanker contract in itself should not affect Boeing on an annual basis, in that it only would have led to 12-18 additional tankers per year, which is a small number in comparison to the 450 commercial aircraft that it makes each year (Tessler, 2008, March 6). But, since it is a very large contract in the long-run, at a time when defense expenditures could plateau, it could have long-range significance.

On the other hand, even while the tanker contract announcement and protests were at their peak in late February through mid-March, 2008, Boeing was still announcing new orders and the award of new contracts. For example, on February 25, 2008, before the contract decision on the tankers became public, Boeing won a \$77 million contract with the Air Force to install 37 infrared, anti-missile systems ("Boeing Wins \$77M," 2008). On March 5, it was reported that Boeing and Bell Helicopter (part of Textron) had won the contract to provide the V-22 Osprey with spare parts—a \$204.5 million Navy contract ("Boeing, Bell," 2008). On March 13, Boeing won a \$32.8 million contract to provide the Air Force with Combat Survivor Evader Locator radio systems ("Boeing wins \$32.8M," 2008). On March 14, Boeing won a \$28.2 million contract to provide the Navy with parts for the Growler attack aircraft ("Boeing wins \$28.2M," 2008). Over the preceding week, Boeing also listed orders for 85 new planes ("Boeing shares," 2008). Finally, on March 17, Raytheon and Boeing won \$89.5 million worth of contracts to provide radar systems to the Air National Guard and to the Air Force ("Raytheon," 2008).

The key to Boeing's long-run success is its ability to innovate and to be willing to modify its products to the needs of the customer. Merely satisfying the stated requirements of the customer is not always the best strategy in an increasingly competitive global marketplace, with many new entrants. Moreover, Boeing needs to continue to invest in assets specific to its relationship with customers. Hopefully, its protest on the awarding of the tanker contract to Northrop/EADS and the resulting delay in the Air Force's time trajectory in obtaining new tankers will not reflect negatively on its long-standing relationship with the Air Force. Nevertheless, Boeing needs to focus on the lessons from its loss in this competition and other competitions, rather than expending significant energy combating the outcome of those earlier decisions.

6.3 Impact on EADS

The award of the highly publicized tanker contract to the Northrop Grumman /EADS team will provide EADS with a much-needed boost. Financially, it has been struggling for several reasons: (a) the weak dollar—EADS airliners sell in dollars, but often pays its suppliers in euros (Hepher, 2008, March 3); (b) the financial impact of its delays with the A-380 and, recently, with the A400M (Lagorce, 2008, March 3), which was supposed to debut in July and which has been delayed until October (Hepher, 2008, March 7); and (c) some flattening in customer expenditures relative to previous years. On March 11, 2008, the reported losses for 2007 were worse than expected. Its net loss was 446 million euros in 2007 (the net loss was



forecast at 329 million euros) and represents a deterioration from its 99 million euro profit in 2006. The rise of the euro reduced the revenue at Airbus by \$1 billion (Hepher, 2008, March 11).

EADS has been delighted at the award of the contract, partially because the contract will provide it with a greater capability to penetrate the US defense market and possibly to position it better to win future contracts. The existing EADS aerial refueling tanker has already won competitions in Australia, Saudi Arabia, the UAE, and Britain (Hepher, 2008, March 3), and its success in the US marketplace against an established competitor will help it to gain greater traction. Indeed, on March 27, 2008, a consortium led by EADS (and also including Rolls Royce, Cobham and Thales, and the VT Group) won a \$26 billion contract in the UK over 27 years to provide 14 Airbus 330-200 tankers to replace the RAF's ageing fleet of VC-10 and Tristar refueling tankers. This contract had been under negotiation since 2004, and the success of the Northrop/EADS bid in the US may have helped to generate positive momentum (Pfeifer, 2008). EADS' success in both the US contest and the UK contest vindicates its strategy to increase its defense capabilities and not to depend entirely on commercial programs. Moreover, this KC-45a contract, combined with the weak dollar, may lead to EADS making an acquisition in the US (Vandore, 2008, March 10), to obtain an even greater foothold in the US market.

6.4 Implications for the Government Procurement Process

The award of the tanker to the Northrop/EADS consortium suggests that the government procurement process does not always favor incumbents and that there is an increasing emphasis on obtaining the most appropriate product at the best cost. Furthermore, it continues the precedent of transparent, open processes—which are often open to the global marketplace, especially when the range of national security threats, such as the terrorist threat, is more globally focused.

One concern is the potential impact on the government procurement process if the tanker's funding is successfully blocked by Congressional representatives who did not support the decision to award the contract to Northrop/EADS. If this occurs, it will send a signal that the political landscape—factors such as which states benefit from the award of a given contract and which Congressional representatives have greater power—can overturn a decision made by defense procurement experts who are weighing cost and quality issues between competitors with deliberation over a period of months. This may lead to greater reluctance on the part of contractors to make the necessary investments to create the best product at the lowest cost to the government. Rather, the contractors may focus on locating production in states which have powerful Congressional representatives, rather than the states which have the lowest cost or which are otherwise more appropriate for production. If this, indeed, occurs, it could lead to a reduction in innovation, since the focus will have shifted from the quality of the product to the importance of political considerations within Congress. Indeed, it reduces the importance of having a transparent and well-documented government procurement process if Congress can ultimately block the funding for the winning proposal anyway.

7. Conclusion

As of this writing, the outcome of the tanker contract has not been settled. Boeing has lodged a protest, and the GAO is reviewing the case. While the work on the tankers has temporarily been halted, the outcome of Boeing's appeal will likely become clear in the next few months.



The award of the contract to the Northrop/EADS team was significant for several reasons. First, it indicated that the Air Force was anxious to get the best product at the lowest cost. EADS' willingness to innovate was seen in other competitions and in its R&D to create a new boom. Both its innovative tendencies and its flexibility are hallmarks of a successful entrant into a new industry, while Boeing's focus on its pre-existing tanker models and the degree to which they met the specifications stated by the Air Force is indicative of the behavior of a traditional incumbent. Second, the Air Force's willingness to award the contract to a team involving a foreign contractor suggests the recognition that the defense industry has become a global industry that is sufficiently robust to be able to respond to a range of threats to the security of the global community. Third, it indicated the Air Force's willingness to defend its position and describe its criteria emphasizes the transparent and well-documented nature of the process.

The protests against the award, however, have emphasized the fact that the Northrop/EADS team includes a foreign competitor. The discussions and statements of many of the opposing Congressional representatives have focused on the need to prevent American jobs from going overseas, despite the fact that the Northrop/EADS contract would create some jobs in the US, especially in the port of Mobile, AL. This type of argument is often made to protect a declining industry or a failing incumbent against lower-cost, more innovative products made by industries overseas. It encourages the placement of temporary bandages on the problem, rather than an exploration into the heart of why the industry or firm in question is uncompetitive or the development of strategies to make the industry or firm successful. Boeing's own arguments in its official protest, however, have focused more on the differences between the two products and the guidance that it received from the Air Force than on the issue of US jobs going overseas—this latter argument has been made more by Congressional representatives in the affected areas.

In conclusion, the tanker competition embodies many of the key debates across industries in the US economy. Changes in the overall US industrial base, rising fuel prices, the weakness of the dollar, and the range of threats confronting the global community, including the threat posed by terrorism, are important forces in making a procurement decision. Hopefully, the outcome which best serves the American people and the US military will emerge from the dialogue between Boeing, Northrop Grumman/EADS, the Air Force, the GAO, and Congress and will reinforce the move towards more transparent processes, the best product at the lower cost, and the recognition of a more global defense environment.

List of References

- Analysts assess damage to Boeing in aftermath of contract loss. (2008, March 3). *Marketwatch*. Retrieved March 18, 2008, from <http://www.marketwatch.com>
- Boeing, Bell team get \$204.5M Navy deal. (2008, March 5). *Associated Press*. Retrieved March 18, 2008, from <http://biz.yahoo.com>
- Boeing calls for Air Force review of tanker contract awarded to Northrop. (2008, March 3). *Los Angeles Business*. Retrieved March 18, 2008, from <http://losangeles.bizjournals.com>
- Boeing: Far from satisfied. (2008). *Business Week*. Retrieved March 18, 2008, from <http://www.businesweek.com>
- Boeing protests U.S. Air Force tanker contract award. (2008, March 11). Press Release. Retrieved March 18, 2008, from <http://biz.yahoo.com>



Boeing requests immediate KC-X tanker briefing. (2008, March 4). Press release from the Boeing Corporation. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Boeing shares rise on new orders. (2008, March 14). *Associated Press*. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Boeing study projects that as oil prices climb, 767 tanker most cost efficient. (2008, March 17). *Press Release*. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Boeing to challenge U.S. Air Force tanker decision. (2008, March 10). *Reuters*. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Boeing to protest \$35B tanker deal. (2008, March 11). *CNNMoney.com*. Retrieved March 18, 2008, from <http://CNNMoney.com>

Boeing's trouble with tankers. (2008). *Business Week*. Retrieved March 18, 2008, from <http://www.businessweek.com>

Boeing wins \$77M Air Force contract. (2008, February 25). *Associated Press*. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Boeing wins \$32.8 million Air Force contract. (2008, March 13). *Associated Press*. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Boeing wins \$28.2M Navy contract boost. (2008, March 14). *Associated Press*. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Carpenter, D. (2008, March 5). Boeing says its tanker proposal superior. *Associated Press*. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Caterinicchia, D., & Tessler, J. (2008, March 3). Boeing hits bumps, analysts parse path. *Associated Press*. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Conn. wants answers from Air Force. (2008, March 6). *Associated Press*. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Crawley, J., McSherry, M., Rigby, B., & Vorman, J. (2008, March 10). Boeing to challenge US Air Force tanker decision. *Reuters*. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Crown, J., & Epstein, K. (2008, March 11). Boeing files tanker protest. *Business Week*. Retrieved March 18, 2008, from <http://www.buinesweek.com>

Daly, M. (2008, March 3). McCain still considering tanker deal. *Associated Press*. Retrieved March 18, 2008, from <http://www.buz.yahoo.com>

Drawbaugh, K. (2008, February 29). Congress in turmoil over Air Force tanker decision. *Reuters*. Retrieved March 18, 2008, from <http://www.reuters.com>

Drawbaugh, K. (2008, March 3). U.S. Congress roiled by Air Force tanker decision. *Reuters*. Retrieved March 18, 2008, from <http://www.reuters.com>

Drawbaugh, K. (2008, March 11). US Lawmaker drafting bill to block tanker funding. *Reuters*. Retrieved March 18, 2008, from <http://www.reuters.com>

EADS confirms tanker refueling test. (2008, March 4). *Reuters*. Retrieved March 18, 2008, from <http://www.reuters.com>

Hepher, T. (2008, March 3). EADS shares soar after big US defense deal. *Reuters*. Retrieved March 18, 2008, from <http://www.reuters.com>

Hepher, T. (2008, March 5). France says EADS deal reflects better US ties. *Reuters*. Retrieved March 18, 2008, from <http://www.reuters.com>

Hepher, T. (2008, March 7). Airbus CEO rejects backlash over US tankers deal. *Reuters*. Retrieved March 18, 2008, from <http://www.reuters.com>



Hepher, T. (2008, March 11). EADS 2007 net loss worse than expected. *Reuters*. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Hinton, C. (2008, February 22). Air Force set to award \$40 bln air tanker contract. *Marketwatch*. Retrieved March 18, 2008, from <http://www.marketwatch.com>

Hinton, C. (2008, March 10). US Air Force debriefs Northrop Grumman on tanker award. *Marketwatch*. Retrieved March 18, 2008, from <http://www.marketwatch.com>

Hinton, C. (2008a, March 11). Boeing files protest over lost US tanker deal. *Marketwatch*. Retrieved March 18, 2008, from <http://www.marketwatch.com>

Hinton, C. (2008b, March 11). Boeing files protest over the Air Force tanker award. *Marketwatch*. Retrieved March 18, 2008, from <http://www.marketwatch.com>

Hinton, C. (2008, March 12). Boeing might deliver just 45 Dreamliners in 2009. *Marketwatch*. Retrieved March 18, 2008, from <http://www.marketwatch.com>

Kan. Senate seeks to halt Air Force deal. (2008, March 7). *Associated Press*. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Lagorce, A. (2008, March 3). Northrop-EADS tanker wins a boon for Europe. *Marketwatch*. Retrieved March 18, 2008, from <http://www.marketwatch>

Lagorce, A. (2008, March 7). EADS mulls changes to block higher foreign stakes. *Marketwatch*. Retrieved March 18, 2008, from <http://www.marketwatch.com>

Morgan, D. (2008, February 29). US says little about European role in tanker deal. *Reuters*. Retrieved March 18, 2008, from <http://www.reuters.com>

Northrop group wins \$35B Air Force deal. (2008, February 29). *CNNMoney.com*. Retrieved March 18, 2008, from <http://www.CNNMoney.com>

Northrop Grumman fires back on tanker debate. (2008, March 5). *CNBC.com*. Retrieved March 18, 2008, from <http://www.cnn.com>

Palmer, D. (2008, March 6). U.S. fighting Airbus case at WTO despite tanker deal. *Reuters*. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Pfeifer, S. (2008, March 28). EADS wins 13 billion pound RAF tanker contract. *Financial Times*, p. 21.

Raytheon gets US Air Force contracts. (2008, March 17). *Associated Press*. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Rigby, B. (2008, March 3). Boeing faces questions after tanker loss. *Reuters*. Retrieved March 18, 2008, from <http://www.biz.yahoo.com>

Rigby, B. (2008, March 11). Boeing says Air Force tanker award flawed. *Reuters*. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Shalal-Esa, A. (2008, March 4). Air Force agrees to brief Boeing on tanker loss. *Reuters*. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Tanker deal: Why Boeing shouldn't protest. (2008). *Business Week*. Retrieved March 18, 2008, from <http://www.businesweek.com>

Tessler, J. (2008, February 22). Huge stakes in Air Force tanker deal. *Associated Press*. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Tessler, J. (2008, March 6). Air Force tanker can't be all American. *Associated Press*. Retrieved March 18, 2008, from <http://biz.yahoo.com>

Tessler, J. (2008, March 11). Boeing protests tanker decision to GAO. *Associated Press*. Retrieved March 18, 2008, from <http://biz.yahoo.com>



- Vandore, E. (2008, March 3). EADS shares surge on \$35B US Contract. *Associated Press*. Retrieved March 18, 2008, from <http://www.biz.yahoo.com>
- Vandore, E. (2008, March 10). Airbus parent eyes US acquisition. *Associated Press*. Retrieved March 18, 2008, from <http://www.biz.yahoo.com>
- Vorman, J., & Wolf, J. (2008, March 6). Boeing likely to decide on tanker protest this weekend. *Reuters*. Retrieved March 18, 2008, from <http://biz.yahoo.com>
- Wingfield, B. (2008, March 11). Boeing fights back. *Forbes.com*. Retrieved March 18, 2008, from <http://www.forbes.com>
- Witkowski, W. (2008, March 3). GE expects \$5 bln for engines in Northrop contract. *Marketwatch*. Retrieved March 18, 2008, from <http://www.marketwatch.com>
- Wolf, J. (2008, February 28). US Air Force Chief extends tanker suspense. *Reuters*. Retrieved March 18, 2008, from <http://www.reuters.com>
- Wolf, J. (2008, February 29). US Air Force to announce tanker award at 5 p.m. *Reuters*. Retrieved March 18, 2008, from <http://www.reuters.com>
- Wolf, J., & Shalal-Esa, A. (2008, March 2). Northrop-Eads beats Boeing to build US tanker. *Reuters*. Retrieved March 18, 2008, from <http://biz.yahoo.com>
- Wolf, J. (2008, March 7). Boeing gets U.S. briefing on tanker decision. *Reuters*. Retrieved March 18, 2008, from <http://biz.yahoo.com>
- Wolf, J. (2008, March 18). Boeing confident of winning back tanker deal. *Reuters*. Retrieved March 18, 2008, from <http://reuters.com>



2003 - 2008 Sponsored Research Topics

Acquisition Management

- Software Requirements for OA
- Managing Services Supply Chain
- Acquiring Combat Capability via Public-Private Partnerships (PPPs)
- Knowledge Value Added (KVA) + Real Options (RO) Applied to Shipyard Planning Processes
- Portfolio Optimization via KVA + RO
- MOSA Contracting Implications
- Strategy for Defense Acquisition Research
- Spiral Development
- BCA: Contractor vs. Organic Growth

Contract Management

- USAF IT Commodity Council
- Contractors in 21st Century Combat Zone
- Joint Contingency Contracting
- Navy Contract Writing Guide
- Commodity Sourcing Strategies
- Past Performance in Source Selection
- USMC Contingency Contracting
- Transforming DoD Contract Closeout
- Model for Optimizing Contingency Contracting Planning and Execution

Financial Management

- PPPs and Government Financing
- Energy Saving Contracts/DoD Mobile Assets
- Capital Budgeting for DoD
- Financing DoD Budget via PPPs
- ROI of Information Warfare Systems
- Acquisitions via leasing: MPS case
- Special Termination Liability in MDAPs



Human Resources

- Learning Management Systems
- Tuition Assistance
- Retention
- Indefinite Reenlistment
- Individual Augmentation

Logistics Management

- R-TOC Aegis Microwave Power Tubes
- Privatization-NOSL/NAWCI
- Army LOG MOD
- PBL (4)
- Contractors Supporting Military Operations
- RFID (4)
- Strategic Sourcing
- ASDS Product Support Analysis
- Analysis of LAV Depot Maintenance
- Diffusion/Variability on Vendor Performance Evaluation
- Optimizing CIWS Lifecycle Support (LCS)

Program Management

- Building Collaborative Capacity
- Knowledge, Responsibilities and Decision Rights in MDAPs
- KVA Applied to Aegis and SSDS
- Business Process Reengineering (BPR) for LCS Mission Module Acquisition
- Terminating Your Own Program
- Collaborative IT Tools Leveraging Competence

A complete listing and electronic copies of published research are available on our website: www.acquisitionresearch.org





ACQUISITION RESEARCH PROGRAM
GRADUATE SCHOOL OF BUSINESS & PUBLIC POLICY
NAVAL POSTGRADUATE SCHOOL
555 DYER ROAD, INGERSOLL HALL
MONTEREY, CALIFORNIA 93943

www.acquisitionresearch.org



Acquisition Research Program: Creating Synergy for Informed Change

Market Dominance, Efficiency, Innovation, and Globalization: A Case Study of the Tanker Competition between Boeing and Northrop Grumman / EADS

Dr. Nayantara Hensel

Graduate School of Business and Public Policy

US Naval Postgraduate School

The Aerospace and Defense Industry is a Key Sector in the Global Economy

- The global aerospace and defense market had 2007 revenues of \$636.8 billion in 2007
 - The defense segment generated \$481.2 billion
 - The civil aerospace sector generated \$155.6 billion
- In 2007, the Americas contributed to 53.5% of the market value of the sector, Europe contributed 28.8%, and Asia Pacific contributed 17.7%.
- The global aerospace and defense market overall exhibited a CAGR of 4% during 2003-2007
 - The US market exhibited CAGR of 6.1%
 - The European market exhibited a CAGR of 1%
 - The Asia-Pacific market exhibited a CAGR of 3.6%.
- The largest firms by market share in the global aerospace and defense industry are:
 - Boeing (9.3%)
 - EADS (6.8%)
 - Lockheed Martin (6%).

Source of data: Datamonitor's *Global & US Aerospace and Defense Industry Profiles*, January, 2008



Various Forces Have Re-shaped the Competitive Landscape Over the Past Twenty Years

- Reductions in defense budgets following the end of the Cold War contributed to consolidation among US defense contractors
 - The top five defense contractors in 2001 received 34% of all prime contract awards, which was the same share that the top ten defense firms in 1985 had received
 - 51 separate defense firms or units as of 1980 had been folded into the top 4 defense firms by 2001
- Shift in the US industrial base away from manufacturing and toward services
- Post 9/11 period has been marked by the emergence of a new type of threat in the form of terrorism, which transcends the boundaries of nation-states and poses significant risks to the global community
- Shift toward more transparent processes both in corporate practices in the post-Enron world and in government procurement processes
- Innovation has continued to be important for US defense contractors
 - As they compete against smaller entrants in a more open government procurement process
 - As they struggle against the concern that manufacturing is shifting overseas and away from the US
 - As they handle the dual role of foreign companies as allies in the war on terror and as competitors



Background on the Tanker Contract

- These forces were important considerations in the controversy over the award of the initial \$35 billion contract to replace the USAF's fleet of aerial refueling tankers to a team composed of Northrop Grumman and EADS, instead of to Boeing, which had been providing the tankers to the USAF for almost 50 years
- Contract may involve the most expensive purchase in defense history, with the exception of the F-35 JSF made by Lockheed-Martin.
- Recapitalization of the USAF has become a priority. The average age of the existing KC-135 tankers is 47 years, and the planes were first put into service in 1957
 - 531 tankers from the Eisenhower period
 - 59 tankers built by McDonnell Douglas in the 1980's
- This award was to constitute the first of three awards which could, including maintenance, be worth \$100 billion.



Background on the Tanker Contract

- The award of the contract to Northrop / EADS was announced on February 29 and was a surprise.
 - A poll of 10 industry analysts had forecast a win for Boeing
 - General Moseley (USAF Chief of Staff) noted on February 28 that he himself did not know who would get the contract.
- Boeing met with the USAF on March 7 to receive its briefing on why it lost the contract.
- On March 10, it announced that it would challenge the decision by filing a protest with GAO, which would then have 100 days to determine if the contract had been fairly awarded or if a new competition was needed
- The hearings on the contract began on May 5.
- GAO is expected to rule on the case by June 19.



Comparison of the Two Proposals

- The winning tanker, the KC-45a, was a modification of the Airbus A330.
 - Air Force General Lichte noted that the KC-45a provided, “More passengers, more cargo, more fuel to offload” and suggested that the bigger capacity of the tanker has been an important consideration in awarding the contract.
 - The Air Force argued that the Northrop / EADS bid had done better than Boeing on 4 of the 5 criteria
- Boeing, which proposed a modification of the 767, argued that it had provided the Air Force exactly what was requested in the RFP and that if a larger plane had been required, they could have provided a modification of the 777.
 - They argued that the Air Force had changed its requirements on the amount of ramp space, etc. to keep Northrop in the competition.
 - On March 17, Boeing released a study suggesting that since the A330-200 required 24% more fuel than the 767-200ER, it would cost the USAF \$30 billion more in fuel costs.



Should the Contract be Awarded to a Foreign Manufacturer?

- Congressional representatives from regions in Washington, Kansas, and Connecticut, which would have benefited if Boeing had received the contract, strongly protested the decision and argued that US jobs were being sent overseas and have threatened to develop a bill to block funding for the tanker.
- Labor unions, such as the Association of Machinists and Aerospace Workers, have requested Congress to enact legislation preventing the US from awarding contracts to overseas companies receiving government subsidies, since the EU has been accused of providing subsidies to Airbus.
- Senator McCain, “I’ve never believed that defense programs should be—that the major reason for them should be to create jobs. I’ve always felt that the best thing to do is to create the best weapons system we can at cost to taxpayers.”



Should the Contract be Awarded to a Foreign Manufacturer?

- In fact, while 85% of Boeing's tanker would have been made in the US with 44,000 jobs, the tail would have been made in Italy and the fuselage in Japan
- About 60% of the Northrop / EADS tanker would be made in the US, and 48,000 jobs would have been created nationwide, especially in Mobile, AL, where the final assembly work would occur.
- EADS has already spent \$500 million to build an engineering center in AL and plans to not only create 48,000 jobs by assembling the KC-45a, but also to work on the A330 there, which would create an additional 22,000 jobs. The facility will be the third largest manufacturing facility in the world.



Should the Contract be Awarded to a Foreign Manufacturer?

- Defense Secretary Robert Gates stated that “defense manufacturing is a global business” and officials have expressed concern that if Northrop / EADS lose the contract, other countries could retaliate by buying fewer US weapons.
- Boeing is an example of a global firm in that it makes weapons systems for other countries, so its hard for it to argue that its unfair for a government to outsource a contract to a foreign supplier.
 - Sells C-17’s to the UK, Australia, and Canada
 - Sells F-15’s to Japan, Korea, and Singapore
 - Sells aerial refueling tankers to Italy and Japan
 - Boeing’s 2007 revenues were \$66.4 billion:
 - \$27.1 billion came from commercial and military sales overseas.
 - Sales to Europe comprised \$6.3 billion of which 16% came from sales to the military
 - About 13% of its total revenues from defense production came from overseas and included contracts to produce rockets in France, “early warning” systems in South Korea and Turkey, and helicopters in Saudi Arabia, Israel, and Egypt.



Should the Contract be Awarded to a Foreign Manufacturer?

- All classified military technology would be installed by Northrop after the aircraft was assembled so that EADS would not be handling it
- Foreign contractors have worked on other key US defense contracts.
 - EADS has been working on a \$2 billion Army contract to replace 345 Huey helicopters, in addition to providing the Coast Guard with radar systems and search / rescue aircraft
 - Presidential helicopter was partially built by Italy's Finmeccanica
 - Britain's BAE Systems has been involved in a number of projects since it purchased United Defense Industries in 2005.



Have Boeing and EADS Competed Against Each Other Previously for Tanker Contracts?

- Since 2001, Boeing and EADS have faced each other in competitions for tankers in 6 countries
- EADS has won 4 of the competitions to supply a total of 25 planes (Saudi Arabia, UAE, Australia, Britain)
- Boeing has won in Italy and Japan to supply 8 planes
- EADS has won many of these competitions by manifesting the traditional behavior of a successful entrant in being innovative and in absorbing risk, while Boeing has behaved like a traditional incumbent
 - Example 1: EADS' willingness to assume financial risk in constructing planes and leasing them when it won the \$26 billion contract in 2004 to replace the UK's tankers
 - Example 2: EADS' willingness to use its own R&D money to test and develop a boom in the Australian competition



Impact on Boeing

- Is this part of a gradual erosion in Boeing's defense operations? Will the force of its protest disrupt its long-term relationship with USAF?
- Will Boeing's loss of its traditional role in building USAF tankers put it at a disadvantage in other competitions?
 - Possibly, since if the trend continues in which EADS wins the competitions, the countries supplied by Boeing—Japan and Italy—may end up with “orphan fleets” which will have higher maintenance costs than if Boeing had developed the scale economies in costs to maintain the parts through obtaining other contracts
 - As other potential customers see the higher maintenance costs, the cycle will become self-reinforcing
 - In itself, the loss of the contract should not affect Boeing, since it would only lose 12-18 tankers per year, although in the long run, it's a large contract



Other Factors Impacting Boeing

- Boeing recently announced a further 6 month delay for its new, more fuel-efficient 787 Dreamliner (the third delay). Originally planned to deliver 112 of its 787's by the end of 2009; now they plan to deliver 25.
- Over 50 airlines are waiting for 892 Boeing 787's and are lining up to ask for compensation.
- Japan Airlines and ANA, which are customers for the 787-3, which has been indefinitely delayed, may have to overhaul their entire strategy for dealing with the higher fuel costs. Indeed, they may switch to Airbus.
- Cost of penalties could exceed \$4 billion and higher R&D costs will squeeze its cash flow
- The future of the C-17 is in question, since the Pentagon has not recently added any new planes and Boeing is itself funding the production of 30 extra planes
- Nevertheless, their quarterly profit of \$1.62 beat the analysts average forecast of \$1.36 per share and their full year profit target is unchanged



Impact on EADS

- May have a greater capability to penetrate the US defense market and to win other competitions
- Winning the contract will provide EADS with a much-needed boost because it has been struggling.
 - Weak dollar: EADS sells airliners in dollars, but often pays suppliers in euros.
 - Has hiked prices beginning May 1 due to the 6.5% increase in metals prices and the 17% decline in the dollar against the euro over the past 12 months
 - Plans to shift production more into dollar-zone countries
 - Financial impact of its delays with the A380 and the A400M
 - But, it has delivered 26 helicopters to the Army on time or ahead of schedule and is transferring production work from Germany to Mississippi.



Impact on the Government Procurement Process

- Suggests that the government procurement process does not always favor incumbents and that there is an increasing emphasis on obtaining the most appropriate product at the best cost
- If the tanker's funding is successfully blocked by Congressional reps who did not support the award to Northrop / EADS, then it will suggest that the political landscape can overturn a decision made by defense procurement experts weighing the costs and benefits
 - May lead to contractors being less likely to make the investments necessary to produce the best product at the lowest cost
 - May result in contractors focusing on locating production in states with powerful Congressional representatives
 - Could lead to a reduction in innovation due to the shift away from quality and toward political considerations



Conclusions

- The tanker competition embodies many of the key debates across industries in the US economy
- The award of the contract to a foreign manufacturer highlights the recognition that the defense industry is global and must respond to a wide range of threats to the global community.
- Boeing's focus on its pre-existing tanker models and the degree to which they met the RFP is indicative of the behavior of a traditional incumbent
- EADS is exhibiting the innovative tendencies and flexibility of a successful entrant
- Arguments that US jobs would be lost are often made to protect declining industries or failing incumbents. These arguments often don't examine why the industry or firm is uncompetitive and do not aid in the development of strategies for improvement.
- Hopefully, the outcome will reinforce the move toward more transparent processes, innovative and low cost products, and the recognition of a global defense environment.

